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AUTHOR Cooper, Charles R.; Matsuhashi, Ann
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ABSTRACT

Composing in writing is a complex psycholinguistic process about which very little is known. Nearly all of the research on composing in writing has looked at the written product, not at the process by which it came into being. This document reviews past research on the composing process and proposes a study in which video cameras would record simultaneously the writer and the transcription as a piece is being written, for playback on a split screen. The subjects would be competent twelfth-grade writers who would come to the laboratory setting for 14 one-hour sessions. Each writer would be asked to write two pieces each of expressive writing, reporting, generalizing, and persuading. The document describes the equipment to be used, the procedures to be followed, and the writing tasks to be assigned and enumerates the sources of data in the study: writers' introspections about the writing process; observations of the videotapes; the written products; and timings of pauses, word rate, and overall writing rate. The document also discusses the ways in which data would be analyzed in the attempt to frame new hypotheses about the composing process and to extend and refine the kinds of questions researchers are presently able to ask. (GW)

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Learning about Transcribing and Composing Through Timed Videotape Studies

Charles R. Cooper and Ann Matsuhashi

Faculty of Educational Studies

State University of New York at Buffalo

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"We need an image of the writer.

Pretty well of necessity he sits alone.
Book or paper in front of him, an implement
to work with....There are long periods when
he sits, motionless, staring in front of him,
nothing apparently going on....But then there
is another rhythm--a dipping of the head, a
tension in the body (sometimes an almost ludicrous
contortion), and a mere line of black marks which
he has won from silence....

What is going on, though, more precisely?...

For the outward signs, of course, the physical means,
will not get us far. We need to penetrate the act, to
speculate our way towards--and it is essentially
speculative--the terms in which the act takes place in
the writer's consciousness."

From Anthony Burgess, et.al. Understanding Children Writing. Penguin, 1973, p. 66.

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Introduction

Composing in writing is a complex psycholinguistic process about which we know very little. Our ignorance reflects the nearly intractable nature of the research problem as well as the neglect of the study of composing in writing. What the composing process has needed has been a decades-long research effort like the one we have devoted to reading, though we would hope better-directed and more productive.

Nearly all of the research on composing in writing has looked at writing products--at the "mere line of black marks...won from silence"--not at the process by which they came into being. Linguistics, stylistics, literary criticism, and discourse theory have provided a significant body of knowledge about written language. While there have been important attempts to infer from written products how the mind works during composing (Kinneavy, 1971; Odell, 1977) and to develop theories about composing (Page, 1974; Ney, 1974), we have avoided studies which would let us look more directly at the composing process. We have been reluctant to "speculate our way towards the terms in which the act takes place in the writer's consciousness."

For thinking about how the mind works to compose in writing we have not been without suggestive sources of information. General theories of creativity have enabled us to establish several stages in the composing process: conception,

incubation, production (or pre-writing, writing, revising). However, we know very little about what goes on during each of these stages. Interviews with writers and their letters to their editors or to other writers make engaging reading, but they do not provide us much systematic information about the composing process. For researchers not constrained by behavioristic research models and not interested in designing unnecessary research studies of any kind, it would seem that turning directly to what writers say about how they write would answer a great many important questions about the composing process. Reading the Paris Review Interviews, however, we realized we would learn little there about how the mind works during composing. Some writers have warned us we should pay no attention to what they say anyway.

When Janet Emig (1971) reported her now-famous case studies of the composing process, she was able to identify only two previous process studies. Besides offering a more detailed and comprehensive description of the stages of composing than the one from general creativity, her study makes an important contribution to research with a procedure called "composing aloud," in which the writer attempts to verbalize his or her plans, decisions, or hesitations during the act of writing. Though a promising procedure, we and others have had considerable difficulty training writers to use it. Emig's study has also been very important in reassuring researchers in composing that observational and case study procedures can be very fruitful and that when used with skill and insight they can inform us about the composing process.

A mere footnote in Emig's study was the impetus for the study we want to describe in this report. In discussing research implied by her case studies, she conjectured about the possibility of studying "with a finer calibration" the actual behaviors in writing. She mentioned the possibility of using either time-lapse photography or an electric pen and stylus which would permit a record to be kept of every time a writer starts and stops writing, a device actually used in

the Van Bruggen study we will describe briefly below. When we finally encountered reports of the research of James Britton and his colleagues at the University of London, we found reference again to an electric pen. They had an electrical engineer design an "electronic transmitting pen," but did not have the money to have it built. As a result of these suggestions we became intrigued with the possibilities of a second-by-second record of the transcription process. Our hunch was that such a record, interpreted from the theoretical perspectives of cognitive psychology and psycholinguistics, would permit us to make inferences about the composing process lying behind the transcription. Then in a footnote in Britton's 1975 study we found this suggestion: "Now that TV cameras and videotapes are fairly easily available, it is possible to study writers at work. The tapes, the completed pieces of writing, and the writers' retrospective comments might provide very useful information about what happens during writing" (p. 48). We had independently and prior to reading Britton recommended something quite similar: "...to videotape separately the transcription and the writer as a piece is being written. From above the writer and at a slight angle, one camera could be focused on the writing paper which would be affixed to one spot on a writing table. From the side, another camera would be focused on the writer. The researcher would then study the parallel videotape and the completed piece of writing. What might we learn if we ask a writer, experienced and comfortable with this writing situation, to write several pieces each of expression, persuasion and explanation" (Odell, Cooper, and Courts, 1977)?

It seems to us that some such approach in a laboratory setting using videotape would permit us to ask some very basic questions about transcribing and composing. Findings from such studies would enable us to frame new hypotheses about composing, and to extend and refine the kinds of questions we are presently able to ask.

Related Research

Searching for timed studies of the transcription process, we found only a single one entitled "Factors Affecting Regularity of the Flow of Words During Written Composition," reported in 1946 by John Van Bruggen. He had eighty-four Grade 7, 8, and 9 writers transcribe from memory the first seven sentences of the Gettysburg Address, re-write from memory a story they had just read, and write an original piece on a conventional school topic. Watching the writer from close by through a one-way screen,the researcher placed a stylus on a contact plate as the writer transcribed and raised it when the writer paused at any point, ordinarily only between words. The contact plate was wired to a machine called a kymograph in a nearby classroom. On a two inch paper tape automatically punched 100 times a minute (every six-tenths of a second) was recorded a pencil line which was abruptly depressed when the stylus was held to the plate (when the writer was actually transcribing a word) and abruptly elevated when the stylus was removed (when the writer paused). Taking the original composition and guided by a squiggle on the tape indicating the end of each line (produced by three quick touches of the stylus), the researcher was able then to transcribe onto the paper tape at the appropriate place each word from the composition. Then it was an easy step to finding the length of time used for each word and of pauses between words.

Looking at the data in a number of ways and comparing nine of the best compositions to nine of the poorest, Van Bruggen reached a number of conclusions like the following: original writing is slower than copying or re-writing, writers vary greatly in "word flow" and lengths of pauses, the best writers were able to transcribe in "thought units" between pauses, and pauses were shorter in the best compositions. He also correlated "word flow" with a number of conventional school measures. A unique study methodologically, the report is weak

because Van Bruggen was unable to bring to bear on the data any useful theoretical perspectives. Since we will use a different methodology and technology, we were not helped much by Van Bruggen's report, but we felt encouraged by it nevertheless.

When we followed up a lead from Emig's research review, we discovered the studies of pauses in spontaneous speech by Frieda Goldman-Eisler (1967, 1971, 1972, 1964). Her research is too rich and complex to review in this brief report, but we will comment that her work clearly demonstrates how a study of pause length and frequency, of the context of pauses, and of the rhythm created by alternating periods of hesitation and fluency can lead to compelling insights about the psycholinguistics of spontaneous speech. Naturally, we are hoping that a similar study of pauses in writing can lead to useful insights about the psycholinguistics of composing in writing. In particular her analysis of the contexts of pauses and her conjectures about the planning function of pauses have been very helpful to us in thinking about ways we might analyze our data. In addition, her findings that generalizing involves twice as much pausing as narrating confirmed our choice of quite varied writing tasks for our study.

Questions for this Study

There are two broad questions which guide the design and data analysis of our study. Answering the first requires only observation and time calculations of transcribing behaviors. We will be satisfied if we can do that well. Answering the second requires great ingenuity and insight within the context of a number of theoretical perspectives relevant to our behavioral data. We'll see what comes of that.

Question 1: What observable and temporal behaviors go on during the transcription process?

Question 2: From observations and time calculations of the transcription process what can we infer about the composing process underlying transcribing behaviors?

In the section on data analysis at the end of this report we will present a number of specific sub-questions of Question 1.

Design

The study will combine observation and case study techniques with the timing in seconds of transcribing behaviors.

Subjects

From a suburban high school in Williamsville, New York, we will identify with the help of the English staff about thirty unusually competent Grade 12 writers. We will ask these writers whether they would be willing to participate in our study, offering them released time from their English class and an "A" grade for completing the study. We will then interview each volunteer (see Interview Schedule, Attachment A) in order to identify four who seem unusually insightful about the composing process.

Since we are not concerned in this initial study with variability in the quality of writing performance, we are choosing only unusually skillful writers, who can adjust easily to the laboratory situation. We are studying the temporal features of transcribing by skillful, mature school-age writers in several discourse types. Studies of variability, of disability, of earliest attempts at writing, and of age-level differences in performance may come later.

Arrangements for Videotaping

The four writers will come to the university three times a week for a total of fourteen one-hour sessions to write in a special laboratory setting (see Figure 1). Sitting alone in a small office at a narrow desk, each writer will transcribe his or her composition on a specially-sized, lined legal pad which is affixed to the desk. Suspended from the ceiling above and just slightly in front of the desk will be a video camera focused on the writing pad. From across the room at desk-top level will be another video camera focused on the writer. The signals from both cameras will pass through a special effects generator, which permits both signals to be recorded simultaneously for playback on a split screen. The signal from the camera on the writer will also pass

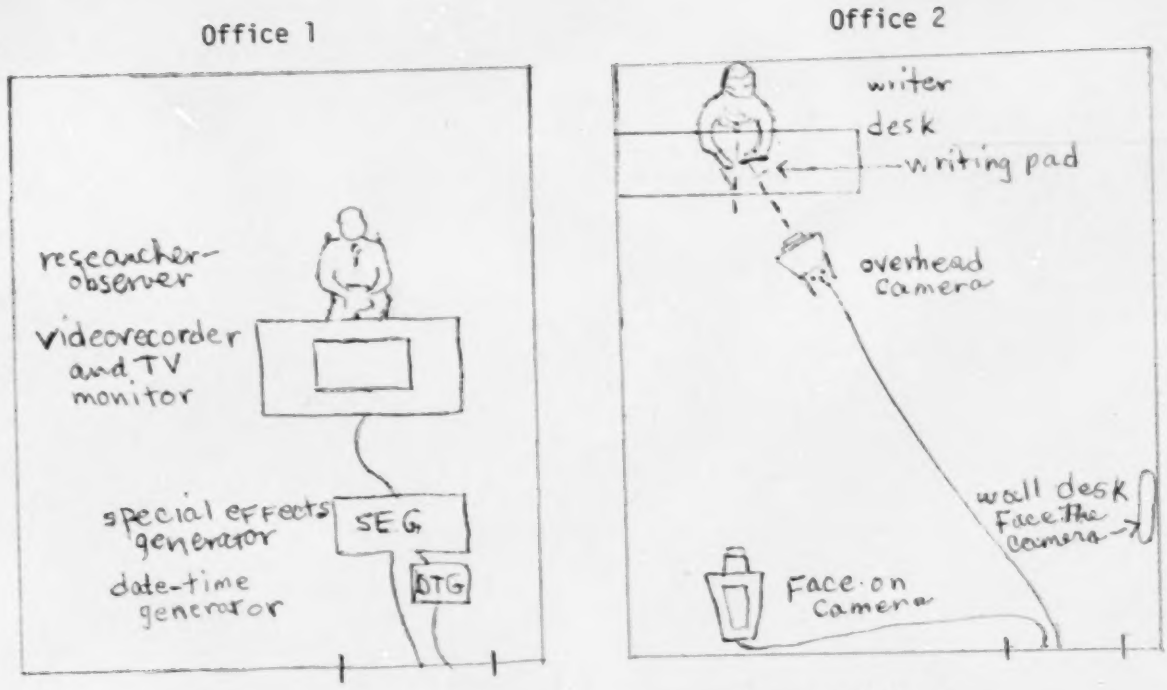

Figure 1: Physical Arrangements for Timed Videotape Studies of Transcribing and Composing

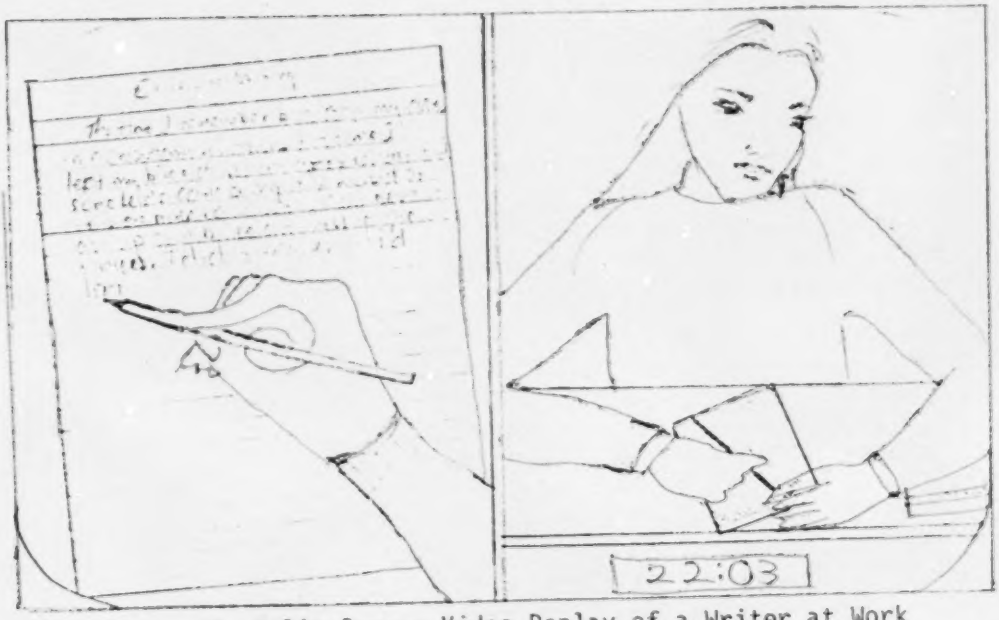

Figure 2: Split Screen Video Replay of a Writer at Work

Drawings by Laura Cooper

through a date-time generator which records the time in minutes and seconds in a small frame on the videotape. (see Figure 2)

In an adjoining office will be located the special effects generator, the date-time generator, the video recorder, and the video monitor. Putting this equipment in a separate office removes from the writing situation the inevitable equipment noises. The researcher-observer will monitor each writing session, watching the transcription unfold on one half the screen and the writer at work on the other half, taking notes to guide a stimulated recall interview with the writer just after the writing is completed.

Since we will use hour-long videotapes, writers will be limited to an hour for each composition. They will have a large wall clock to watch in order to pace themselves. This limitation and the lab setting itself are serious disadvantages in our study, but we accept them in order to get the timed record of transcription we need. In justification of our design we could argue that students are accustomed to finishing compositions in school within time constraints. Much of the transactional writing people do on the job--memos, reports, letters, newspaper copy--is produced within time constraints. To ease the time constraint somewhat we will give the writer each new writing task at the session prior to the one for writing on that task and encourage the writer to rehearse and plan without making notes or outlines. In addition, we are confident these skillful writers will be able to relax in the lab setting and write much as they normally do in school situations where they must work under reasonable time constraints. Using ourselves as writers in our tryouts of the physical arrangements in the lab, we found that we could focus on the writing task, fall into our usual pattern of producing short pieces, and largely ignore the equipment.

The writer will transcribe on the affixed pad using an instrument we have yet to select, an instrument which will give the most readable image on the

video monitor. In our tryouts ball-point pen was superior to Number 2 pencil, but we suspect that some kind of synthetic tip pen may be best.

The Writing Tasks

Guided by the discourse theory of James Kinneavy (1971) and James Moffett (1968) and the scheme for classifying written discourse of James Britton and his colleagues (1975), we will ask each writer to produce in the laboratory setting two pieces of expressive writing and six pieces of transactional writing (two each of reporting, generalizing, and persuading). All the writing tasks are prose non-fiction. They are all commonly done in school or college or on the job. Except for literary or poetic writing, they include the major discourse types of written language: expressive, explanatory, and persuasive. Furthermore, within the explanatory category they touch two different abstractive levels: reporting and generalizing. Since the range of discourse types in the writing tasks provides a major context for analyzing the transcribing behaviors we will observe, we want to present here a brief definition of each discourse type with one example of a writing task in each type.

Expression: The focus is on the writer. The writing remains close to the self. Its purpose is to reveal the speaker, to verbalize consciousness, to express perceptions, feelings, attitudes, moods, or opinions. Expression in writing can take the form of a diary or journal entry dealing with the writer's preoccupations of the moment, a personal letter to a friend, or even a piece directed at a public audience assumed to share the writer's values and opinions, as in gossip columns and some newspaper editorials. Expressive writing task:

> Think back to a time when something disappointed you so badly that you became extremely discouraged with yourself. Write about that time or incident, telling what happened to discourage or disappoint you,

what you thought about, and how you felt. Write this in the form of a letter to yourself, which you will seal and save to read again when you are 21 years old. You are writing only for yourself and expressing your real feelings about the disappointment.

Reporting: The focus is on the information, not on the writer. As in all explanatory writing "the conventions governing its use presuppose that facts should be right, assertions true, comments relevant, arguments consistent: in short, that its information may be used if the reader so chooses" (Britton, et. al., p. 94). In reporting, the writer recounts past observations, as in writing up a particular incident in his own past. Consequently, reporting uses the past tense and takes a narrative form. The organization is chronological. We are choosing to have our writers write up a personal incident rather than make fresh observations in the manner of a newspaper reporter. Example of a reporting task:

Choose some incident that happened to you on a particular day several years ago, at some time before you began high school. Write about the incident for an "Events I Remember" column in your school newspaper. Your readers will be the other students at your school. Your purpose is to inform them about what happened to you on that day in your own past. Use a sincere, reasonable, informative "writing voice." Remember that your purpose in writing is simply to share information with your reader.

Generalizing: As in reporting, the focus is on the information. All the conventions of explanatory writing still hold. The writer asserts a generalization and then supports it with instances from experience, reading, or research. The writing is in the present tense and the organization is analogic. Much professional writing in the sciences, social sciences, and humanities takes this

form. Many conventional school writing "topics" seem to be asking for generalizing. Generalizing is different from reporting in that it is in the present tense, is analogic, is at a higher level of abstraction, increases the distance between the writer and his material, and combines several observations or instances, rather than focusing on a single one. Example of a generalizing task:

> Think of a general statement that seems true to you about the way people communicate. Examples might be the following: people don't listen very well, the most successful teachers are the ones who communicate well at many levels with their students, parents sometimes have trouble communicating with teenagers, or students would appreciate school more if we had a better school newspaper. Organizing carefully, illustrate the general statement you choose with instances from your own experience or from your reading (either in psychology or in fiction). Write this piece for a "The Way People Are" column in your school newspaper. Your purpose is to inform readers in a sincere, calm, reasonable way about your views on the general statement you have chosen.

Persuading: The focus is on the reader, not on the information or on the writer. The purpose of the writing is to evoke an emotion or conviction from the reader, who is seen as someone whose behavior, attitudes, or opinions differ from the writer's. Using various strategies or arguments, the writer tries to overcome the reader's resistance and win him or her over. Example of a persuasive writing task:

> The editor of your school newspaper has asked you to write an

article about the "Athlete of the Year." The editor wants you to choose the person you would elect as "Athlete of the Year" and tell why that person should get the award. Remember that this outstanding athlete can be either a man or a woman. As you write about your choice, be sure to give as many good reasons for your choice as you can think of. You will be writing the article for other students at your school. Assume that nearly all of your readers would have chosen an athlete different from your choice. Assume, too, that some of your readers will even think you made a bad choice.

Notice how all of the writing tasks except the expressive, require the writer to adopt the same persona for the same audience. At this point we are unprepared to use personal or audience variables as contexts for analyzing the transcription behaviors we observe. Our concern in this study is only with the effects on transcribing behaviors of changes in purpose (from expressing to informing to persuading) and in abstraction level (within informing, from reporting to generalizing).

Procedures

The first three writing sessions for each writer will be for the purpose of familiarizing him or her with the laboratory setting, with our procedures, and with the writing time constraint. In these first three sessions, all of the equipment will be used and we will follow all the procedures outlined below, but we will not use any of the data. The next eight sessions will be recorded writing sessions, the next two recorded revising sessions, and the

last a recorded copying session (see Table 1).

Beginning at the first session and at each session thereafter, the writer will select from twelve tasks in the appropriate discourse type the task he or she wishes to write on at the next session. The writer will be encouraged to rehearse and plan but will not be permitted to bring notes or outlines to the writing session. By giving the assignment in advance and permitting some choice of task we are attempting to move one small step closer to the actual workings of the composing process: knowing the topic launches the prewriting phase of composing, permitting gestation and rehearsal. We are excluding notes from the sessions because we want to time the original first draft transcription of the topic. The writer will be able to make notes or outlines at the session and we will videotape that as well.

Once the writer is seated the researcher-observer (RO) will go to the adjoining office, turn on the video recorder and tell the writer to proceed. The RO will observe the writing and the writer on the split screen, making notes about unusual behaviors or patterns of behavior. Later, after the recorded sessions, with the piece of writing before them, the RO will lead the writer through an audiorecorded stimulated recall interview for the purpose of inquiring about noticeable behaviors--long pauses, long spurts of writing, revisions, repetitive behaviors. We are also considering the possibility of having the writer view one or two of his or her own recorded sessions; but since we are reluctant to increase the writer's self-consciousness or even contribute to his or her insightfulness about the composing process until we have completed the recorded sessions, we will almost certainly wait until all of the sessions outlined in Table 1 are complete before we view and discuss with the writer a tape of one of the sessions. We assume that the writers can contribute

Table 1

	Session Number	Writing Task	Purpose of Session
Week 1	1	Expressing	
	2	Generalizing	Familiarization
	3	Persuading	Writing
Week 2	4	Expressing	
	5	Reporting	
	6	Generalizing	Round I
Week 3	7	Persuading	Writing
	8	Expressing	
	9	Reporting	
Week 4	10	Generalizing	Round II
	11	Persuading	Writing
	12	Revision of a Generalizing task	
Week 5	13	Revision of a Persuading task	Revising
	14	Copying a Reporting task	Copying

in a significant way to our inferences about the composing processes lying behind the transcribing behaviors.

As the writer proceeds, he or she will pull off each page from the lined legal pad and place it in a pattern we will proscribe on the desk near his or her left arm, within easy viewing range. The pattern of pages (one row of three and then another row below it) will permit us to observe time spent re-reading and approximate place of re-reading in the developing draft.

At each of the two revising sessions writers will choose one of their generalizing compositions or one of their persuasive compositions for revision. They will be encouraged to edit, revise, and reformulate. Placing each page of their original in turn on the affixed writing pad on the desk, they will read the piece through once first and then go back through it page by page making revisions which will be videotaped just as the transcribing of the original piece was videotaped.

At the final session writers will recopy a typed version of one of their reporting compositions in order for us to obtain a baserate of transcribing speed.

Analyzing the Data

Sources of data in this study will be the following:

1. Audiorecorded interviews: background (Attachment A), stimulated-recall after each recorded session, and after viewing two videotapes at the conclusion of the series of recorded sessions. We assume that the writers' introspections and recollections will be a significant contribution to the study.

2. Observations: from the writer half (torso of the writer at work) on the split-screen video tapes.

3. Written products: the compositions the writers produce at the sessions.

4. Timings of pauses, word rate, and overall writing rate.

The basic data are simply the timings of each pause, word or word group, and overall rate. These data can be organized in a number of conventional ways: for example, range of lengths of pauses, average lengths of pauses, and distribution of pauses by length. Our initial concern, like Goldman-Eisler's for spontaneous speech, will be to see what we can learn about these pauses, and about word production rate as well.

We will examine the time data in a number of contexts. We can list them only briefly here and merely hint at the possibilities of each. As we prepare this report we are reading widely in transformational-generative syntax, in prose analysis, and in discourse theory. Once we have the timing data organized then this reading can be more focused and productive.

Contexts for examining time data:

1. Writers' introspections/recollections. Writers may be able to help us interpret patterns in the pauses and word rates.

2. Observation. A time record of each paper, along with summary time data for that writer, can guide our reviewing of the tapes as we watch the transcription unfold second by second and observe the writer's movements. We will be particularly interested in how much of the time in long pauses is spent in re-reading and how much spent "gazing." Britton (1975, p. 35) has expressed our interest very well:

> But observation shows that the writing is not continuous, nor is the rate of production regular. Pauses are often longer than the time spent actually writing. We can see a writer scanning back

> over what has been done, and possibly making alterations; this, even if it takes up comparatively little of the pause-time, may be quite important....However, a very much larger proportion of the pause-time is concerned with what is going to be written next. We can observe writers, totally absorbed in the task, gazing into space or at blank paper, pen in hand, sometimes for quite long periods. These pauses tend to be shorter and less frequent in narrative writing than in most other kinds.

3. The text of the composition. Here we will do a detailed analysis at a number of levels:

Syntax: where pauses occur in the phrase structure and within clauses, whether left branching or right branching clauses or deeply imbedded clauses are preceeded by longer pauses.

Modes of presenting information: the relation of pause time to use of contrast, classification, time sequence, logical sequence, reference to change, and reference to physical context (Odell, 1977).

Small pattern: the occurrence and length of pauses at different points within paragraph or paragraph-like structures.

Large pattern: the occurrence and length of pauses at different points within the whole composition.

Discourse type: the differences in word rate, pause length, and location of pauses between expressing, reporting, generalizing, and persuading.

All of these approaches to the data could be documented from a number of sources, theoretical and empirical.

We assume that pauses and short and long transcription spans are not randomly distributed within a timed transcription of an essay. We expect to see distinct patterns of pausing and transcribing which we can at least partially explain

within the various contexts we have listed above. We will be able to answer questions like the following:

How much time in writing is spent in pausing?

How does this differ by discourse type?

Where do pauses occur?

How does their length vary--by discourse type, by position in the discourse?

Does pause time decrease as words accumulate on the page? In all discourse types?

How long does writing take in words per minute?

How does this differ by discourse type?

How long on average does it take a writer to write a T-unit and a clause?

How does this differ by discourse type?

How does writing speed for each writer differ from that writer's copying speed?

What is the proportion of gaze time to re-reading time for each writer in each discourse type?

Lengthening the list is simple enough. Still more questions will occur to us as we do the study and begin analyzing the data.

Beyond these rather obvious and easily-answered questions we will hope to make conjectures about the composing process and to derive hypotheses for a re-examination of the data from this study and for future studies. As a result of our work we hope to learn something useful both about the "line of black marks" and about the "writer's consciousness."

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Attachment A: Interview Schedule

1. Name

2. Age/Year in school/Area of course concentration

3. How many are in your family? Brothers/Sisters?

4. What are your future plans?--school/work/travel?

5. What kinds of advice or comments about writing do you remember hearing from your English teachers?

6. What are some typical writing assignments from any of your classes (science, history, art, etc.)?

7. What are some of the most unusual writing assignments you can remember?

8. What kind of writing do you do outside of school? Have you ever kept a journal? Written poems or stories? Have you ever done a writer's job--writing for a school, club, or church newspaper or magazine, writing ads or announcements, editing something for publication in any form?

9. When you do write on your own outside of school, when do you get the urge to write? What kind of things have happened to you? What kind of mood are you in?

10. What part of writing is easiest for you?

11. What part of writing is most difficult for you?

12. What part of writing is most enjoyable for you?

13. What part of writing is most unpleasant for you?

14. If you stop or quit working on some writing before you feel finished--why?

15. What makes writing easier for you?

16. What kinds of things do you do to help you get started? Any little quirks or habits you can think of?

17. When you can choose where you want to write, describe the scene. Tell me what kinds of things you like to have around. What is an ideal writing situation for you?

18. Describe a good writer. What qualities should that person have, do you think?

19. What would a good writing teacher be like? Describe that person.

20. How do you think professional writers work? What do you imagine they do when they write?

21. Do you ever read your own writing out loud? Why?

22. Does reading your writing out loud ever lead you to change it?

23. Do you ever give your writing to someone else?

24. If you do, do you read it to them or do you ask them to read it at another time or do you ask the other person to read it out loud to you?

25. What kind of comments do you appreciate most?

26. Do you ever think of who will read your writing? If you do, how does that affect what you write?

27. Think of the last piece of writing you did on your own. If you can't think of one, then consider an assignment that you really got into. Tell me everything you can remember about how you began, carried out, and completed the piece. What did you do with it when it was finished? Was it for a specific purpose? How did your feeling toward the writing change while you were working on it?